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ABSTRACT

Substance abuse is pervasive in both rural and urban settings. Previous attempts to educate America's youth as to its dangers have not reduced the numbers of adolescents involved in the drug culture. The assertiveness-based "Just Say No" campaign attempts to counter peer pressure to use drugs, but is hampered by our society's encouragement of conformity. Traditionally, our children have not been taught the assertiveness, problem-solving, and decision-making skills required to "say no." Research indicates that many drug users exhibit social skills deficits, although it is unclear whether drug use is enhanced by such deficits or causes them. A number of commercial programs are available to remediate the social skills deficits identified in school-aged drug users. Two methods that may be particularly useful for disseminating such information in rural schools are computer-assisted instruction and interactive video. This paper reviews ways to use computers, interactive video, and multimedia systems to teach social skills and drug education curricula. Hardware requirements and commercially available software, as well as ideas for custom-designed programs are described. Distance learning systems are briefly discussed as an alternative to traditional teaching methods. A bibliography contains 25 references. (SV)

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THE ROLE OF SOCIAL SKILLS TRAINING IN A COMPREHENSIVE PREVENTION/ REHABILITATION SUBSTANCE ABUSE PROGRAM

INTRODUCTION

Substance abuse and juvenile crime are a growing concern in the United States. The Select Committee on Narcotics Abuse and Control (1986) reported that drug/substance abuse in the United States has reached epidemic proportions. At particular risk today are the nation's pre-adolescents and adolescents. In 1984, a survey on illicit drug use among 16,000 high school seniors across America (Johnston, O'Mallay & Bachman, 1986), indicated that approximately 61% of the students surveyed had used illicit drugs. Fifty-five percent reported using marijuana in their lifetime, 40% within the last year, and 26% within the last month. Approximately 40% of the seniors surveyed reported use of drugs other than marijuana. Other drugs used included stimulants (28%), tranquilizers (12%), sedatives (13%), hallucinogens (13%), inhalants (19%), heroin (1.3%), cocaine (16%), and alcohol (95%). One-third of the marijuana users and two-thirds of the amphetamine users admitted they had used drugs at school. Some reports would indicate that these percentages probably underestimate the true extent of adolescent involvement in drug/substance use/abuse since they do not include those students with high rates of absenteeism or those who have dropped out of school (SCONAC, 1986).

In 1987 there were 12,711,600 arrests in the United States, an increase of 25% in the ten-year period since 1978. Persons under the age of 18 years accounted for 16%, or 2,033,856 of these arrests. For the serious offenses listed in the Crime Index (e.g., murder and non-negligent manslaughter, forcible rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft and arson) juveniles were arrested for 29% of the crimes (U. S. Department of Justice, 1988).

At one time it was felt that substance abuse was a problem occurring primarily in urban ghetto areas. Today drug and alcohol use/abuse is found in all geographic areas of the United States. Rural areas, however, may experience unique difficulties in implementing appropriate intervention programs due to the relatively small numbers and large geographic areas involved.

This paper will focus on a prevention/rehabilitation technique that involves the use of current technological advances to teach specific social skills to a group of juvenile delinquents. This type of intervention might be appropriate for use in rural areas. A general discussion of adolescent drug abuse prevention programs, substance abuse as it relates to juvenile delinquents, and social skills deficits of these adolescents will be included. Commercially available software and hardware will be described and the efficacy of their use in a rural community will be considered.

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DRUG PREVENTION PROGRAMS

Horan, Kerns, and Olson (1988) described the first programs aimed at preventing drug abuse as information-based programming. The apparent failure of these programs was attributed to "drug educators and counselors...long history of distorting the facts about drugs to such an extent that the potential user is apt to find more correct information about drugs in the drug culture than in the classroom" (p. 85). Information-based programs did indicate an improvement in drug knowledge when examined empirically, but as Horan and Harrison (1981) pointed out, these results were not different from what might be expected from a program in which information concerning math or spelling was taught. It was also suggested that later programs attempted to indirectly educate youngsters about drugs by teaching such humanistic topics as self-esteem (Horan, Kerns, & Olson, 1988).

According to Hawes, Benton, Bradley, and Newhouse (1988), drug education programs must be examined as to the "unique needs of the population to be served" (p. 3). Different patterns of drug abuse between rural and urban communities were also indicated. These differences included more alcohol use, by younger, less educated, white drug abusers in rural communities.

It is apparent that drug abuse is a pervasive problem in both rural and urban settings, and that previous attempts to educate America's youth as to the dangers of drug abuse have not resulted in preventing or reducing the numbers of adolescents involved in the drug culture.

JUVENILE DELINQUENCY AND DRUG USE

Although the exact nature of the relationship has not been determined, there appears to be a link between substance abuse and both delinquency and socially unacceptable behavior. In a 1982 study, Hundleby, Carpenter, Ross, and Mercer report drug use is associated with higher levels of sexual activity, minor delinquency, inappropriate school behavior, and deviant social behavior.

Some research suggests that delinquency precedes delinquency drug use. To date, there is insufficient evidence to support this. The idea of a cause and effect relationship or drug use as a precursor to delinquency is frequently discussed but not proven. Some delinquents report using drugs prior to their first delinquent act, others do not use drugs at all or do not begin using them until after committing one or more delinquent acts.

Like the idea that drug usage precedes delinquency, the relationship between the type and/or number of drugs used and the type of crime committed is addressed in the literature. One study found that the use of more than one drug was strongly related to violent crimes, while the use of marijuana appeared to be related to less assualtive behavior (Tinklenberg, et al., 1981, cited in Farrow & French, 1986). Farrow and French also found a "common perception among delinquent youth who are drug users that there is a discreet association" between drug use and criminal behavior (p. 958). Despite the identification of this relationship, support for the belief that the use of multiple drugs as opposed to a single drug influences the types of crimes committed is inconclusive. Simonds and Kashani (1980) compared the types of offenses committed by adolescents using one drug to those using more than one drug. They report no difference in the types of crimes committed by the two groups.

Attempts to negate this peer pressure have been tapped in the assertiveness-based "Just Say No" anti-drug program started by Nancy Reagan. Part of the problem with this campaign is that our society encourages conformity not assertiveness. Traditionally, children have not been taught the

assertiveness, problem-solving or decision-making skills required in 'saying no'. There is evidence to suggest that one method of preventing drug abuse involves teaching students the social skills necessary to cope. Research indicates that many drug users exhibit social skills deficits. (Botvin, 1983; Hawkins, Catalano, & Wells, 1986; Horan, Kerns, & Olson, 1988; McAlister, 1983; and Pentz, 1983). It is unclear whether drug use impairs one's opportunities to develop social skills, or actually inhibits social skills development, or is enhanced by social skills deficits. However, it is clear that social skills are an important consideration in addressing adolescent drug usage.

Bellack and Hersen (1979) identified four elements which were common to most definitions of social skills. The first element suggests that "performance in interpersonal situations depends on a set of discrete verbal and nonverbal response components. Thus, specific parameters can be identified which determine the adequacy of social behavior. Secondly, "the particular parameters which comprise adequate behavior, and their configuration, vary according to the situation." Thus social skills that are appropriate in one situation may not necessarily be appropriate in another situation. Third, "the various component elements which comprise adequate social behavior are learned-response capabilities, i.e., skills. The socially adept individual has learned how, when, and where to employ the various response components." Individuals may therefore vary in their overall level of social skill and in their skillfulness in specific situations. Fourth, it is implied that " when specific social skill deficits can be identified, they can be targeted and remediated by training" (p. 77).

Ogden and Germinario (1988) discussed a comprehensive curriculum for drug education called "Here's Looking At You, 2000" (Seattle, Washington, 1986), in which drug-related issues are taught in kindergarten through twelfth grades. The program provides information about drugs, social skills, and bonding to school and family. The skills addressed include: asking someone for something; abiding by ground rules for discussing sensitive topics in front of others; making decisions; assertiveness; self-control; identifying sources of influence; saying no to keep friends; making friends; stopping enabling; intervening with friends; recognizing when to refer people to others; making referrals; and teaching refusal skills. This and other commercial programs are designed to remediate the social skills deficits that are frequently identified in school aged drug users.

The need and availability of such programs are not the primary issue, rather how to disseminate such information is the problem that must be addressed if there is to be widespread change.

EDUCATIONAL TECHNOLOGY IN RURAL SCHOOLS

In responding to the National Commission on Excellence's A Nation at Risk, the American Council on Rural Special Education (1983) described some of the difficulties rural schools face in implementing educational excellence reforms. Among these concerns was inadequate computer resources. Suggestions offered for implementing the Commission's recommendations included investigation and support of alternate delivery systems and investigation of technological alternatives. Other research substantiates curricular differences between rural and urban schools. Barker (1985) recommended the use of technological alternatives as means of increasing the curricular offerings in rural schools suggesting that "software programs permit replication of curriculum content that is interactive and can be cost effective when only a very few students show interest in a particular course" (p. 37).

Support of alternate delivery systems and technological alternatives has increased. The concerns expressed in 1983 have been alleviated in some areas. Marshall and Bannon (1986) found rural teachers had more positive attitudes toward computers. Moreover, forty-two percent of the students in rural schools surveyed had daily access to computers and sixty percent of the students surveyed had a computer at home. Electronic Learning's Ninth Survey of the States (Bruder, 1989), indicates states' funding of technological alternatives increased with telecommunications and distance learning being the top two funding trends. Thirty-four states support the use of technology for at-risk students. Funding for adequate technology and teacher training in the uses of technology continue to be major concerns in most states.

While it is beyond the scope of this paper to provide a thorough review of the funding and teacher training concerns; various teacher training models, both preservice and inservice, have been described in the literature (Brunson, 1988). Funding sources fluctuate and are often dependent on state or federal mandates and corporate programs. Some cooperative funding ideas will be discussed briefly later in this paper.

EDUCATIONAL TECHNOLOGY IN TEACHING DRUG EDUCATION AND SOCIAL SKILLS

Having established the relevance of teaching social skills as a method of prevention of drug/substance abuse, the next concern becomes finding methods of teaching such skills. As with any area of curriculum, a variety of methods exist which may prove to be effective in dissemination of information or improvement of skills. This paper will, however, be limited to those methods which include the use of technology, specifically computer-assisted instruction and interactive video.

Computer-assisted instruction has generally been described as falling into one of three categories; drill and practice, tutorial, or simulation. Drill and practice software does not teach new skills but provides opportunities for practicing skills which have previously been taught. These programs have been compared to electronic flash cards. They may be presented in an adventure or arcade game format but their ultimate purpose is to allow repetition of such skills as math computation, spelling, and memory exercises involving states and capitals, presidents of the United States, etc. Tutorial software actually takes responsibility for teaching skills and can be used as a complement to other teaching methods. Tutorials are often designed to teach a concept, provide questions to determine mastery of the concept, then branch to review material or new material depending on level of mastery. Simulations provide a situation in which the sequence of the program is determined by choices made by the user. For example, a popular program called Oregon Trail simulates a covered wagon trip to Oregon. The user chooses which supplies (i.e., medicine, food, ammunition) to purchase before starting the trip. Periodically, during the course of the trip supply inventories and weather conditions are reported and the user must choose between such actions as hunting for more food, buying ammunition, or stopping at a local fort. Whether the user's covered wagon reaches Oregon or not is dependent on the choices made under the given circumstances.

A recent trend in educational computing is the use of applications software (electronic spreadsheets, databases, word processors, and telecommunications) as an instructional tool. Spreadsheets, which allow manipulation of numerical data, are similar to an accountant's ledger. Databases are electronic file cabinets. Word processing software allow composition and manipulation of text. Telecommunications involves transferring information from one computer to

another via telephone lines. Each of these types of software has found a home in classrooms.

Various delivery systems are possible when using computer technology. The major differences among the delivery systems exist in the amount and types of hardware required. A computer is the only piece of hardware needed for some programs. However, the interactive videodisc and multimedia systems require additional hardware. A videodisc player is necessary for interactive video. Multimedia systems are often expansions of interactive video which include a sophisticated software, scanner, audio and video digitizers, and a sound or voice synthesizer.

The remainder of this section offers suggestions for using computers, interactive video, and multimedia systems as methods for teaching social skills and drug education curricula. Schools may choose to purchase stand-alone commercially available programs or design their own programs. The programs may require a single computer, a network of computers, an interactive video system, telecommunications programs or a combination of these approaches. Programs may be designed for use with single students in one district, groups of students in a single district, or used jointly between districts with mobile or distance learning delivery systems. The next sections of this paper describe programs which are available commercially and ideas for custom-designed programs for use with computers or with computers and interactive video or multimedia systems.

Commercially Available Programs

Early complaints concerning the use of computers in education often centered around software issues; specifically, the amount and quality of software available. Software production often did not keep pace with the rapid proliferation of computers in the educational setting. As demand increased, the amount of available software for use in a wide range of curriculum areas has also increased. Questions continue to arise about the quality of that software. Evaluation of a variety of software indicates quality software based on sound educational principles is certainly available but is not guaranteed. The programs described in this section are available but should be subjected to a thorough preview and evaluation process prior to implementation.

As previously described, Ogden and Germinario (1988) include a scope and sequence of drug-related curriculum as contained in the "Here's Looking at You, 2000" program used in Seattle, Washington. Software is available to address each of the three major curricular areas; Information, Skills, and Bonding to School and Family. Some programs deal specifically with drug education; others combine drug education and social skills; still others are designed to strengthen general social skills.

Three drug education software programs were reveiwed in a recent issue of Electronic Learning (Sept., 1989). The programs offer different approaches to drug education and are designed to be used with different age groups. For the younger age group (grades 4-6), Say No to Drugs! uses a building self-esteem and self-confidence approach, has accompanying activity sheets, and works in a group instructional setting with teacher guidance. A combination of tutorial and simulation types of computer-assisted instruction, Say No to Drugs also asks students to complete stories about to drug related situations described within the program. Drug Abuse, a tutorial program, is recommended for grades 7-12 and is arranged in a series of information disseminating lessons designed to be completed sequentially. Learning Multi-System Incorporated's Body Awareness Resource Network (BARN) appears to be the most comprehensive of the programs reviewed. With more than 25 hours of information offered, BARN is

targeted for an adolescent audience and includes modules on Body Management, Human Sexuality, Smoking, and Stress in addition to those on Alcohol and Other Drugs. BARN is tutorial in nature and also allows for some modification by the user. These and other programs listed in this issue range in price from $35 to $159.

Two drug education programs from Marshware, Drugs: Who's in Control and Drugs: Their Effects on You, are targeted for grades 4 and above. Who's in Control is designed to be used by groups of six students and teaches social skills through role playing and decision-making about drug-related situations. Their Effects on You is a tutorial which teaches about commonly used drugs and their positive and negative effects.

An interactive multimedia program titled Target Interactive Project (TIP), developed jointly by the National Federation of State High School Associations and IBM Educational Systems, has recently been marketed. Information is provided in a tutorial format to teach adolescents the effects of alcohol and drug abuse. In addition to the tutorial, the program includes a simulation which is designed to teach and/or reinforce social skills required to say no to alcohol and drugs. TIP requires an IBM PS/2 Model 30, two videodisc players and a touch-sensitive screen. If none of the hardware is already available, the total start-up cost for this program would be slightly more than $14,000. (Brady, 1989)

Programs are available which address a variety of social skills. The following are only a few examples. Blueprint for Decision Making was developed for grades 3 and up, Improving Your Self-concept for secondary students and adults. On the Playground and Taking Responsibility are the first two programs in the Choices, Choices series from Tom Snyder productions. These two are appropriate for grade levels K-6 are tutorial and simulation software which involve students in making critical decisions.

Custom-designed Programs

The development and use of customized-designed programs for teaching social skills, like most other curricular areas, will depend on the funding available and the skills of personnel involved in the project. Options range from little capital outlay and minimal computer experience to extensive capital outlay and sophisticated computer programming skills.

Perhaps the simplest way to create a customized drug education tutorial is to use database software to create a file of information about drugs. A database which includes names of drugs, their effects and other pertinent data could be compiled by school personnel or by the students themselves. Schools which already use computers are likely to have database software available. If not, inexpensive but useful public domain or shareware programs are easily obtainable. A customized database would also require no programming ability on the user's part.

More sophisticated programs are possible with interactive video systems. Interactive video has previously been used successfully in teaching social skills (Browning et al., 1986; Thorkildsen et al, 1983). A computer, videodisc player, video camera, and software are necessary for an interactive video system. To produce the program, students, teachers, or counselors videotape any visual material to be included in the program (i.e., role-playing situations with several different endings, social situations involving peer pressure, etc.). Once all the visual information is transferred to a videodisc, the possibilities for program continent are limited only by the usefulness of the contents of the videodisc. Since one side of a videodisc will hold 54,000 frames of visual information, appropriate planning for what to include will allow for a wide range of simulation

experiences or tutorial information. Most schools have video cameras and computers. Therefore, the only additional hardware purchase necessary is the videodisc player ($500-$1000). Software to connect the computer to the videodisc player is usually included. Two possible disadvantages of this system are: 1) the project cannot be completed locally (the process of transferring information from the video tape to the videodisc must be done by specialized company), and 2) some programming is required to access the information on the videodisc (commands must be written to determine the sequence of the program and to specify which frame(s) of the videodisc are to be displayed).

An interactive video system could be considered a low-end version of a multimedia system. Computer companies and many computer users are touting multimedia systems as THE ultimate in educational computing. These systems may combine the computer with a video camera or videodisc, digitizers, scanners, music synthesizers and other hardware which can be connected to the computer to produce instructional presentations which include audio, motion, still pictures, text, graphics, music. Multimedia systems also require HyperCard (Mac) or LinkWay (IBM) software to interconnect the components of the system and to "stack" the information to be accessed in the program. The software acts as a cross between a programming language and an authoring system but does require some familiarity with programming concepts. Acquiring the necessary hardware for a multimedia system may not be cost effective for many rural schools. The system would not, however, be limited to uses in drug education and social skill training. A variety of commercial multimedia programs are available in other subject areas.

Alternate Funding and Delivery Systems

While the computer may is considered an alternate delivery system when compared to more traditional teaching methods, this section refers to distance learning and itinerant programs. Both methods of providing instruction may be cost and personnel effective for rural schools for individual districts or districts in cooperative arrangements.

In distance learning situations the teacher and students are separated with instruction transmitted via satellite or telephone lines. Instruction may be transmitted to one or more classrooms or districts and may be one-way or two-way audio and/or video interactive. With one-way interactive systems, the students hear (or see) the teacher but cannot communicate responses and questions. Two-way interactive systems allow the teacher and student to communicate with each other. Distance learning based on satellite communications usually involves receiving transmissions from a designated site such as a university or a central system such as TI-IN in San Antonio, Texas, which transmits educational programming to several states. While this author is not aware of any specific drug education or social skills programs currently available by satellite transmission, demand for such programs may prompt their addition. Distance learning involving transmission over telephone lines may be more easily established between districts. Such a system would involve using only one teacher to provide instruction to several districts and would allow for local planning and control of content.

Itinerant programs may require travel by personnel and transportation of hardware. Barker (1985) describes a mobile computer "lab" which travels from school to school eliminating the necessity for equipping each school with necessary hardware and software. Itinerant personnel hired cooperatively between districts have proven to be an effective means of providing special education services or instructional services in low-demand curricular areas.

The alternate delivery systems described may not be cost or personnel effective as a means of providing drug education or social skills training only. However, combined with other areas in which computer technology is already being implemented or considered, they may be highly effective and desirable.

SUMMARY

The role of technology in the enhancement of social skills appears to have promise. To date, that role is relatively unexplored. Work in the area of curriculum development and dissemination is needed. Further, data to substantiate the effectiveness of social skills training using technology will be necessary.

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